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AN ACCOUNT OF THE NESTING HABITS OF FRANKLIN'S ROSY GULL (*LARUS FRANKLINII*), AS OBSERVED AT HERON LAKE IN SOUTHERN MINNESOTA.¹

BY THOMAS S. ROBERTS, M. D.

[*With Photographs from Nature by the Author.*]

THE LOCALITY where the following observations were made is a great marshy lake far out in the vast prairie region of southwestern Minnesota. It lies in Jackson County, one of the most southerly tier of counties of Minnesota, and is fifty-six miles from the eastern line of South Dakota and thirteen miles from the northern line of Iowa. The southeastern end of the lake is at about 43° 45' north latitude, and 95° 20' west longitude. Heron Lake, with certain neighboring sloughs within a radius of ten or fifteen miles, is the southernmost station at which Franklin's Gull is known to nest. For many years after its first discovery in the Fur Countries by Dr. John Richardson, early in the third decade of the present century, it was considered to be a strictly boreal breeding species. And it was not until after the invasion of its nesting grounds at Shoal Lake and other Manitoban localities by Mr. Donald Gunn in 1867 that fragmentary accounts began to appear from time to time disclosing the fact that many little bands of these birds cut short their northward flight to make their summer home on the prairies of North Dakota and western Minnesota. To the present day little of definite character has appeared in our general works on ornithology in regard to the nidification of the species. Several short articles in collector's journals have appeared, most notable among them, and the source of much of the quoted information of late years, being an article by J. W.

¹ This article consists of extracts from a paper read at the meeting of the American Ornithologists' Union in Philadelphia, November 15, 1899. The original paper, somewhat elaborated and accompanied by a considerable series of illustrations from photographs from nature, is at present in course of publication by the Minnesota Geological and Natural History Survey.



FRANKLIN'S GULL ON NEST.

Preston on 'The Breeding of Franklin's Gull in Minnesota,' published in 1886 in the 'Ornithologist and Oologist' (Vol. II, p. 54). Preston's notes were based upon observations made during a visit to the Heron Lake colony several years previous to the first visit made by the writer. The material for the present article is the accumulation of three trips in three different years to the same general locality. On the last visit the Gulls were studied at intervals for a period of fifteen days, under most favorable and varied conditions, and a series of photographs embracing about one hundred negatives was secured, a selection from which is presented herewith. My companion on this latter expedition was Mr. Leslie O. Dart, and I wish here to acknowledge a by no means inconsiderable indebtedness to him for the successful issue of our work, especially in the photographic line. To his able coöperation is due very largely the beauty of the best of the illustrations accompanying this paper.

About the time of the final loosening of the ice in mid-April the vanguard of the Rosy Gulls arrives, and by the time the surface is clear they are coursing back and forth in great numbers over the broad expanse of open water that presents itself at this season of the year. The transients soon pass on or scatter to neighboring sloughs, and the Heron Lake Colony, proprietors by right of no one knows how many years of occupancy, select with much noisy consultation the location for the year. The mating contests over and settled, the busy, turbulent throng then begin the work of nest-building, which consumes the first few days of May, so that by the middle of that month the laying of the eggs has begun, and in three or four days thereafter the sets are complete, and the tedious task of incubation has begun. These dates are sometimes anticipated a little, while on the other hand a late season may cause delay, so that the depositing of the eggs may occur as early as the end of April or be postponed until the latter part of May. The Rosy Gull, like others of its family, nests strictly in colonies, and even on a lake as large as Heron Lake, all the individuals there resident congregate at one place and build their nests close together. But, unlike most birds breeding in colonies, the site chosen is rarely the same on any two successive seasons. Just why this should be so is not evident. It

seems to be due chiefly to an inherent fickleness on the part of the bird. This Heron Lake colony moves about from place to place, sometimes in the Upper Lake, sometimes in the Lower Lake, choosing locations in different years that may be miles apart, and varying to some extent in character.

Preston found them in 1886 at the extreme lower end of the lake, within sound and in plain sight of the village. In 1892 they settled on a spot further up the lake and close to the Herony. Here they built their nests among the standing bull-rushes fringing the open water, and a sudden rise in the level of the lake in early June broke most of their nests from their moorings, and they were carried by heavy winds out into open water and destroyed. The following year a location was selected close by the scene of this disaster, but considerably further in shore where the water was not over two feet deep and the growth of grass, flags and rushes, rank and thick, and so matted and bent by the snows of many winters that a safe and lasting harbor was insured. Here I visited them May 21 and 22 with Thomas Miller as guide, and found the nests of this colony of some two or three thousand Gulls placed so closely together that a dozen or more could easily be reached at one time from a small skiff forced in almost anywhere among them. While most of the nests were well built of reeds and rush stems, many of the birds had taken advantage of the secure and elevated foundations afforded by the broken down and matted vegetation to deposit their eggs in very indifferently put together nests. In this inside position, affording such good cover and so easily accessible from land, the birds were exposed to much annoyance by egg-hunting marauders, especially mink, judging from the number of despoiled nests observed.

After an unsuccessful attempt to find the Gulls in 1898, word came in May of the following year that they were once more at their old quarters and, equipped with photographic outfit and accompanied by Mr. Dart, the writer arrived at Heron Lake on the 12th of June. On the 16th we made our way in small hunting boats to the nesting ground, which on this occasion these fickle birds had chanced to locate some four or five miles from any available embarking point. Not a Gull was to be seen until



FIG. 1. DISTANT VIEW OF A PORTION OF THE NESTING SITE OF THE FRANKLIN'S GULL COLONY AT HERON LAKE, MINN.



FIG. 2. A PAIR OF FRANKLIN'S GULLS ON A FLOATING NEST.

the nesting site was almost reached. At last a few sentinels were sighted and as they announced our approach we rounded a final point of rushes into the comparatively open water of the upper lake (occasioned by recent floods) and there, spread out before us, a half mile distant, lay the object of our long and laborious search.

The surface of the water was everywhere dotted with dark little mounds and hundreds upon hundreds of Gulls filled the air above, circling round and round or hovering for a moment as they settled or rose in their incessant coming and going to and from the nests. And now our ears distinctly told us of the proximity of this interesting spectacle, for even at the distance of half a mile the harsh screams and rattling cries of the whirling mass of birds united to form a wild uproar that was very plainly audible. As we paddled quietly toward the scene of this confusion, and were getting ready our weapons for the noiseless attack we expected to make, the nearest Gulls soon espied us, and with redoubled outcry passed the word to all the rest. And now with one accord, the whole colony came streaming toward us — a few in the lead, but hundreds in the rear — until we were soon surrounded and accompanied the balance of our way by an immense wildly excited escort that by every means known to Gulldom, protested against the intrusion and tried in vain to impede our further progress. The frenzied, distressed notes and the furious dashes of the birds as they all but struck our heads excited both our pity and our admiration.

We made first a general reconnoissance of the entire nesting site.

At a distance of about an eighth of a mile from the marshy, reed-grown shore, the little floating mounds dotted thickly a great crescent-shaped area some three fourths of a mile in length by three or four hundred yards in the widest part. The nests were irregularly distributed. In some places there were many close together, and again they were scattered yards apart, while now and then there were large spaces where there were none at all.

Under ordinary conditions the water over all this area would have been two or three, nowhere over four, feet deep, with a thick growth of bull-rushes (*Scirpus*) standing well above the surface. But heavy rains had raised the lake until the water was in

many places fully six feet deep and only the tops of the tallest rushes came into view; thus changing a large part of the nesting ground from a dense tangled bed of rushes into almost open water. Upon this condition of things the birds of course had not reckoned when they chose the site, and in consequence many of the nests were now torn from their moorings, having been lifted by the rising water, and were unprotected save by the weak tops of the submerged rushes. Thus free to drift, they were floating hither and thither at the mercy of the winds, but, strange to say, this state of things did not appear to greatly disconcert the owners. Here and there a number of nests had caught against some firm anchorage, and receiving new additions with each favorable breeze a windrow or island of these stray nests was soon formed. Nest touching nest in this manner resulted in a promiscuous crowding of families that must have tested the good nature and forbearance of the occupants not a little, and probably led to some vagaries in the care of the young described further on. A few nests had gone adrift entirely, and floating far out into the open water had been abandoned. But luckily a considerable part of the colony, wiser than their fellows, escaped this dire confusion or disaster as the result of having located their nests where shallower water and a stronger growth of rushes provided protection and safe anchorage even when the flood was at its height. From nest-building operations still in progress at the late date of our visit (June 16) we inferred that a few at least of the Gulls that had lost their homes were reëstablishing themselves in safer retreats further back, having perhaps learned a lesson against future similar mishaps.

The number of Gulls in the colony we estimated at between two and three thousand, and by counting certain areas, figured a total of about 1200 nests. Preston, in 1885, thought the colony then numbered 10,000, so that if he guessed anywhere near right, there has been a very considerable falling off in the fourteen years that have elapsed. In the six years between my two visits no appreciable diminution in numbers had occurred, so far as I could judge.

After completing our examination of the nesting ground as a whole, and so spreading consternation throughout the entire

colony, we settled down to quiet contemplation and study of the Gulls and their doings more in detail. All of two days and the greater part of a third day were thus spent, and what we saw in and about this bustling, ever changing community proved so engrossingly interesting and entertaining that the hours spent under a blazing sun within the narrow confines of little ducking boats glided rapidly by and proved all too short. The only discordant feature was the almost unbearably harsh and never ceasing outcry that rang continually in our ears. Now somewhat subdued for a few minutes, now breaking out again with redoubled energy, the wild chorus of shrill screams and cat-like calls made such a deep and lasting impression upon the listener that for many hours afterward it was utterly impossible to still the memory of the whole loud painful outcry.

The nests were all built of the same material — old water soaked bull-rushes — with sometimes a few fresh stems worked into the upper part. A heavy foundation of the thickest and longest rushes is first laid, forming a partly submerged platform held in place by the standing rushes about it, the whole being two to three feet across at the water line. Upon this the rather well made superstructure of finer material is constructed, with a long slope from the water's edge up to the rim of the nest, which is raised eight inches to a foot above the water. The cavity is eight to ten inches in diameter and three to four in depth, and is rudely lined with bits of fine rush tops and coarse grass. The inside is always perfectly dry, being several inches above the water. The variation in the nests was not very great, being merely as to general bulk and height. Much of the material of which the nests were constructed had been carried from a distance, probably from the neighboring shore where the rushes, loosened by the ice, had been cast up in heaps. The Gulls carry with apparent ease these great heavy rushes, and were often to be seen flying about for a considerable time with the long stems dangling from their bills. The nests were kept in good repair, and as they became trampled down or the rim disarranged the owners were to be seen putting things to rights or adding a new rush here and there as it was needed. At the time of our visit many young were already out of the shell, but there were also many

sets of eggs in all stages of incubation, the result probably of second nest-building.

The number of eggs in a nest varies from two to four, the most common clutch being three. They vary endlessly in both color and markings, and there is also a great diversity in shape. The ground color of the eggs varies from an unusual extreme of a very light grayish blue through many shades of umber, olive browns, and grayish browns to the other equally uncommon extreme of a very dark brown, approaching almost a chocolate in depth of coloration. Throughout there is a prevailing olive tint, giving a greenish cast, no matter what the body color. The eggs are marked with irregular blotches and pencillings of many shades of cinnamon brown and fuscous, the more deeply lying pigment producing spots of lilac or olive hue. In some eggs the markings vary little in size, and are evenly scattered over the entire surface; but usually they vary from fine dots to large blotches exceeding even a half inch in length, and are thickest at the large end, where they form a wreath, the markings becoming occasionally almost confluent. The irregular pencillings and scratches are confined for the most part to certain sets, and on some eggs nearly all of the markings are of this hieroglyphic character, giving to such the aspect of huge blackbird's eggs.

All the eggs of any one set have about the same ground color and the same general pattern in the markings, and so endless are the styles of coloration that no two sets of a large series are exactly alike. Yet so distinctive are the details of color and form of each set that should all the eggs of a considerable series become thoroughly intermingled it would not be a difficult matter to pick out accurately the different sets.

A rather blunt pyriform is the most common outline, but the extreme reaches on the one hand to an almost perfect ellipse, and on the other to a broad and rather pointed pear shape. The average measurements of a series of 138 eggs are 2.07 inches in length by 1.45 inches in breadth. The longest egg measures 2.29 inches, and the smallest 1.90, — a variation of .39 of an inch. The widest egg is 1.54 inches, and the narrowest 1.35, — a variation of .19 of an inch. The eggs of a set are generally of about the same dimension, and outline.

The exact period of incubation I am unable to state, but it is probably eighteen or twenty days. The chick liberates itself from the shell in the usual manner by cutting it neatly into halves, and the parents at once dispose of the fragments. The first downy plumage varies from a pale yellow to a soft grayish in color, with uncertain wavy markings of brown and blackish over all the upper parts. Some of the nestlings present a generally light appearance, while others are quite dark, but all of a brood are of the same general hue, and the same pattern of coloration. These pink-footed, pale-billed little balls of down now and then remain quietly in the home nest basking in the warm sunshine, but more frequently they are no sooner dry from the egg than they start to wander. A few are content to go no further than the broad sloping sides of the nest, and there they may be seen quietly dozing or tumbling about among the stems of the rushes as they explore the intricacies of their little island. The greater number, however, put boldly out to sea and drift away with the chance breeze, their tiny paddles of little avail as they pursue their now enforced journey. A gust of wind a trifle harder than usual, or a bump against a floating reed stem, and over they go bottom-side up, only to come quickly right again, dry and fluffy as ever. Having after many failures crawled over the tiny obstruction, they sail contentedly on. Now and then they get out to sea in earnest and disappear, and are probably lost in the rough waters of the open lake. Their departure from the nests was apparently ever against the will of the old birds, and many were the scoldings and severe the punishments meted out to these venturesome offspring. A glance in the direction of some local outburst of furious cries would reveal a bevy of Gulls crowded close together, beating the air and the water over a particular spot, where on closer inspection might be seen one or more of these hapless truants. The frenzy of the old birds as the chicks neared the open lake was pitiful to behold. With might and main they endeavored to turn them back, seeming not to realize their utter inability to stem the breeze even had they the inclination to make the attempt. At last, their protests of no avail, a resort is had to still more vigorous measures, and seizing the drifting chicks by the nape of the neck with the powerful beak they are jerked

bodily and roughly out of the water, and from a height of three or four feet thrown as far as possible in the desired direction. This being repeated time and again — often several old birds taking part in the performance — until the youngsters are at last flung into some nest, exhausted and bleeding from the blows and pinches inflicted by the sharp bills of the parent birds. This strange spectacle was of common occurrence, and these vigorous nursery duties seemed to occupy much of the attention of a goodly part of the members of this colony. Probably under ordinary conditions of water and protection such disturbances are less frequent. So far as the disciplining and care of the young went there existed a curious spirit of communism among these Gulls. An old Gull cared for whatever young Gulls fell in its way, and when the stray chicks chanced to clamber up into a strange nest, against which they happened to drift, they were after a few admonishing squawks welcomed as one of the household, and scolded, pecked, and fed just as though the foster parent had laid the eggs from which they were hatched.

Now and then an entire brood would escape in a body and crawling up beside some incubating bird on a neighboring windward nest would cuddle close about the old bird, who, to all appearances, was perfectly willing to adopt them in advance of the appearance of her own infants.

Occasionally we saw old Gulls already in possession of a family twice the size to which they were entitled, rushing out and pouncing upon other fresh arrivals, who were quickly hustled and jerked up among the others until not infrequently ten or a dozen of these tiny balls filled the nest to overflowing, and in the diversity of coloration presented plainly indicated their varied parentage.

Most jealously were these foundling asylums watched over and many were the fierce encounters in mid-air that resulted when some marauding band dared to interfere. A single Gull, aided it might be by some accepted neighbor, fed apparently without distinction all these youngsters, and time and again we saw some little chap, just fished out of the water and still sore from the rough usage to which he had been subjected, fed to repletion by his captor, who disgorged into the tiny maw a juicy mass of dragon-fly nymphs brought from the meadow a mile away.

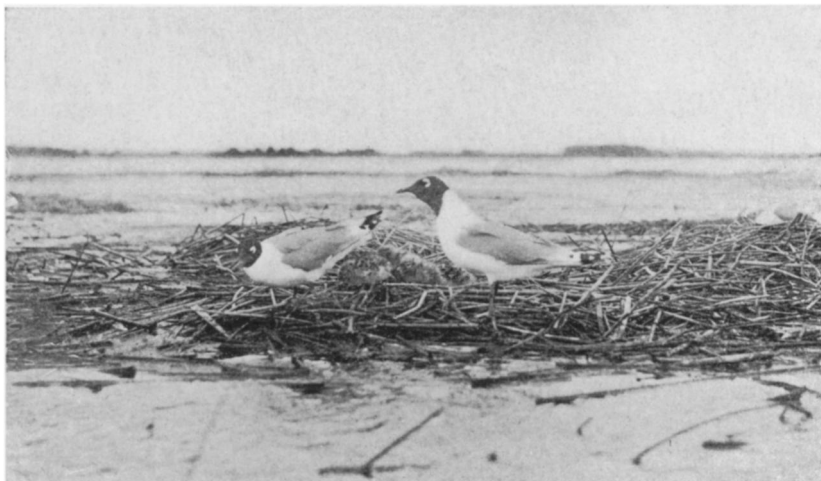


FIG. 1. A PAIR OF FRANKLIN'S GULLS WITH FOUR CHICKS.



FIG. 2. SCENE AT THE FRANKLIN'S GULL COLONY, HERON LAKE, MINN.,
JUNE 16, 1899.

The note of these little Gulls is a faint peep, but weak as it is, it contains a plain suggestion of the harsh scream of the adult, just as the nestling Grebe and gaudy little Coot mimic the cries of the parent.

With all this nest building, nest cleaning, and the varied parental duties devolving upon these birds of trim and delicate attire, they always appeared immaculately clean. As they stood on their nests, or hovered overhead facing the sun, the exquisite pink of the breast was plainly visible at a distance of fifty or sixty feet, and the picture they presented of dove-like beauty and grace of movement was unexcelled by anything we had seen elsewhere.

This superficial resemblance to a Dove, both when sitting and on the wing, is very great and has given rise to the popular name by which they are best known among the farmers through the region where they dwell — 'Prairie Dove.' Hovering lightly on the wing, resting buoyantly on the water, poising as they rise, or alight with upraised wings, or grouped about their nests they are the very perfection of grace and beauty and could not fail to attract the attention and elicit the admiration of the most indifferent of observers.

This colony of Franklin's Gulls had as associates and intimate neighbors many Coots, Pied-billed Grebes, Black Terns, a few Forster's Terns and, most notable of all, because so unexpected in this place, a colony of American Eared Grebes (*Colymbus nigricollis californicus*). There were a hundred or more of these latter birds and they had established themselves in the very midst of the Gull colony. Their nests, which were the very poorest structures that could be called by such a name, were disposed in two or three principal groups, were close together, and were intimately mingled with the Gulls' nests. Perhaps because they had drifted, some of them rested directly against Gulls' nests, but they had not been abandoned. The nests were partially submerged platforms of green vegetation pulled up from the bottom and were without even as much form and stability as is usually possessed by the rude structure of the Pied-billed. The eggs were half under water, and it seemed a marvel how they stayed on the loose platforms at all. They were only imperfectly covered. These Grebes, unlike their Pied-billed relatives, stayed close by their nests and for the most

part on them. When driven off they all swam rapidly away in a body and circled around at a safe distance, only to return immediately as soon as the coast was clear. In clambering up onto these frail nests they tipped and nearly sank the whole affair, but it nevertheless afforded sufficient support for them to lie for hours basking in the sun, often on one side, with the head held awkwardly up, and one leg waving clear of the water — a curious attitude, which it took us some little time to make out in detail with the aid of our glasses.

In conclusion a word may be said in regard to the food habits of Franklin's Gull. Everything goes to show that it, like most birds, eats that which is nearest at hand and easiest to get provided it is at all suited to its wants. During the nesting season at least, the food is almost exclusively insectivorous. The stomachs and gullets of several birds collected by the writer and kindly examined by Prof. Beal of the Biological Survey at Washington, contained a mass of insect débris to the exclusion of all else. One stomach alone furnished some fifteen different species, among them several varieties injurious to the interests of man. The chief part of the food, however, during the time of our visit to the colony, and that on which the young were largely fed, was the nymphs of dragon-flies which were then to be found in immense numbers in the meadows near by. The writer counted no less than three hundred and twenty-seven of these insects in a single stomach. Earlier in the season when the farmers are engaged in plowing, especially when 'breaking' the virgin prairie, many of these Gulls accompany the teams and eagerly contend with a horde of Blackbirds, Black Terns and other birds in securing the larvæ and worms turned up by the plow. Immense numbers of angle-worms, and many grubs of the cockchafer, are at times devoured in this way. Later in the season when grasshoppers have become plentiful the upland prairies and dry knolls become the feeding grounds and a diet of these ill-favored insects takes the place of all else. The aquatic life that is consumed as food is taken principally very early and late in the season and is probably of such a nature that it can in no way modify the conclusion that Franklin's Rosy Gull, besides being an object of great beauty and æsthetic value, has a prosaic and practical side revealed by the nature of

the food consumed, which shows it to be an eminently useful and beneficial bird worthy of all the protection that can be afforded it.

DESCRIPTION OF PLATES.

PLATE IX.

Franklin's Gull (*Larus franklinii*), standing on nest. From photograph taken at Heron Lake, Jackson Co., Minn., June, 1899. About $\frac{1}{3}$ natural size.

PLATE X.

Fig. 1. A distant view of a portion of the nesting site of the Franklin Gull Colony at Heron Lake, Minn. From photograph, June, 1899.

Fig. 2. A pair of Franklin Gulls standing on their floating nest. One egg and a chick visible. From photograph taken at Heron Lake, Minn., June, 1899. About $\frac{1}{3}$ natural size.

PLATE XI.

Fig. 1. A pair of Franklin Gulls with four chicks, in the act of following the parents from the nest. From photographs taken at Heron Lake, June, 1899. About $\frac{1}{15}$ natural size.

Fig. 2. Scene at the Franklin Gull Colony, Heron Lake, Minn., June 16, 1899. Shows in foreground a nest containing, besides the parent birds, twelve chicks, mostly 'waifs,' rescued from the water nearby.



NOTES ON A COLLECTION OF BAHAMA BIRDS.

BY OUTRAM BANGS.

IN THE early part of the year 1893, and again in the spring and early summer of 1897, Mr. C. J. Maynard collected a great many birds on some of the Bahama Islands — chiefly at Nassau, New Providence. Many of these have been distributed, but Mr. May-